

WHAT IS CLAIMED IS:

1. A fuser release agent dispensing system for a fuser device of a reproduction apparatus for toner image production on a substrate, comprising:
5 a sump containing a supply of release agent;
a release agent transfer stage for transferring release agent to a fuser device and having a first transfer roller with a surface rotatable about an axis, a second transfer roller positionable for contact with said first transfer roller while being simultaneously selectively positionable relative to said fuser device to
10 simultaneously rotate with said fuser device and couple the rotation of said fuser device to said first transfer roller; and
a release agent metering stage operatively associated with said transfer stage for controlling the amount of release agent received by said transfer stage, said metering stage having a metering roller with a surface for removing
15 release agent from said sump, and a translational assembly configured to move said metering roller surface into and out of contact with the first transfer roller surface.
2. The system of Claim 1, wherein said second transfer roller
20 includes an axis rotatable about the axis of said first transfer roller for selective engagement of said second transfer roller with said fuser device.
3. The system of Claim 1, further including a drive for rotating
25 said metering roller.
4. The system of Claim 3, wherein said drive provides rotational
movement of said metering roller surface while in contact with the first transfer roller surface to withdraw release agent from said sump and along said metering roller to said first transfer roller surface.
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5. The system of Claim 1, wherein said translational assembly is capable of imparting sufficient contact between said first transfer roller and said metering roller surface to transfer release agent from said metering roller surface to said first transfer roller surface while said first transfer roller surface moves at a speed which is primarily a function of the rotational speed of said second transfer roller and independent of the speed of said metering roller surface.

6. The system of Claim 1, wherein said metering stage further includes a metering surface in contact with said metering roller surface according to a contact force to control the amount of release agent withdrawn from said sump and received by said first transfer roller from said metering roller.

7. The system of Claim 6, wherein said metering surface in contact with said metering roller surface is the surface of a plate positioned in said sump.

8. The system of Claim 1, wherein said metering roller has a hard surface and said first and second transfer rollers have soft surfaces.

9. A fuser and a release agent dispensing system for such fuser for image production, comprising:

a rotatable fuser roller;

5 a release agent transfer stage including a first transfer roller having a surface rotatable about a fixed axis, a second transfer roller positionable for contact with said first transfer roller and positionable against said fuser roller to engage said fuser roller and thereby rotate said first and second transfer rollers with said fuser roller, said first and second transfer rollers having relatively soft,
10 conformable surfaces to form a nip and to distribute release agent to said fuser roller; and

a release agent metering stage including a sump for holding a release agent, a metering roller and an additional metering roller, each metering roller at least partially immersed in said sump and engaged with each other to
15 form a nip therebetween, said metering rollers having relatively hard surfaces compared to said surfaces of each first and second transfer rollers for precisely controlling an amount of release agent passing through the nip of said metering rollers, one of said metering rollers selectively engaging the second transfer roller in said transfer stage for transferring a controlled amount of release agent to said
20 second transfer roller.

10. A release agent dispensing system for metering amounts of release agent to a rotatable fuser roller, said system comprising:

a transfer stage for receiving and transferring metered amounts of
25 release agent to a fuser roller, and a metering stage for removing metered amounts of release agent from a sump in accordance with a first speed control for said metering stage independent of the speed of the fuser roller.

11. A method for controlling release agent transfer to a fuser, comprising the steps of:

metering the amount of release agent withdrawn from a release
5 agent reservoir independent of the speed of a fuser roller; and
uniformly transferring metered amounts of release agent to a fuser
roller.

12. The method of Claim 11, further comprising:
10 providing a surface pressure between a metering roller surface and
a metering surface;
immersing the metering roller at least partially in a reservoir of
release agent;
passing the release agent along the metering roller surface and
15 between the metering roller surface and the metering surface to control the amount
of release agent on the metering roller surface; and
engaging the metering roller surface against a transfer surface to
transfer the controlled amount of release agent to the transfer surface.

20 13. An image reproduction system comprising:
a fuser roller having a surface for affixing toner to a substrate;
a fuser release agent system including a sump for holding release
agent for transfer to said fuser roller, a metering stage to generate a metered
amount of release agent, and a transfer stage to transfer said metered amounts of
25 release agent from said metering stage to said fuser roller; and
a controller coupled to the fuser release agent system to control the
amount of release agent transferred from the sump to the fuser roller in response
to signals indicative of a change in one or more image reproduction parameters.

30 14. The system of Claim 13, wherein said image reproduction
parameters include one or more variables taken from the group consisting of
image density, media type, fuser temperature and release agent viscosity.

15. The system of Claim 13, wherein a variation in release agent transfer to said fuser by said controller is synchronized with movement of the substrate along said fuser.

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16. The system of Claim 15, wherein said controller varies the amount of release agent transferred to portions of the fuser surface as a function of the amount of toner coming into contact with each such fuser surface portion.

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17. The system of Claim 13, wherein said metering stage has a metering roller and a metering surface for removing metered amounts of release agent from said sump, and said transfer stage includes a pair of transfer rollers engaged with each other, one transfer roller engaged with said metering roller and the other of said transfer rollers engaged with said fuser roller for transferring release agent from said metering stage to said fuser roller, wherein said metering stage has a variable rotational speed under control of said controller and independent from said fuser roller speed to control the amount of release agent transferred to said fuser roller as a function of the speed of said first transfer roller.

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18. A method for controlling application of release agent to a fuser roller, comprising the steps of:

transferring a controlled amount of release agent from a sump to the fuser roller; and

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controlling a variation in the amount of release agent transferred from the sump to the fuser roller in response to signals indicative of a change in one or more image reproduction parameters.

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19. The method of Claim 18, wherein the step of controlling the variation in the amount of release agent transferred to the fuser roller is responsive to a change in one or more reproduction parameters taken from the group consisting of image density, media type, fuser temperature and release agent viscosity.

20. The method of Claim 18, wherein the step of controlling the variation in the amount of release agent transferred to the fuser roller includes varying the amount of release agent transferred to portions of the fuser roller as a function of the amount of toner coming into contact with each such fuser roller surface portion.
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